

7 contacting said slurry with gases including carbon monoxide and hydrogen at a
8 temperature in the range of about 250°C to about 325°C and at a pressure in the range of about
9 500 psig to about 3000 psig, to thereby produce mixed alcohols.

1 12. The method of claim 11 wherein the nanosized Group VI transition metal catalyst is
2 sulfided prior to its use in producing mixed alcohols from gases including carbon monoxide and
3 hydrogen.

1 13. The method of claim 11 wherein the nanosized Group VI transition metal catalysts are
2 selected from Cr, Mo and W, and mixtures thereof.

1 14. The method of claim 12 wherein the nanosized Group VI transition metal catalysts, and
2 mixtures thereof of claim 3 are produced including the step of sulfiding said nanosized Group VI
3 transition metal catalysts, and mixtures thereof.

1 15. The method of claim 14 wherein the nanosized Group VI transition metal catalysts, and mixtures
2 thereof, are selected from Cr, Mo and W, and mixtures thereof.

1 16. Nanosized Group VI transition metal catalysts for use in producing mixed alcohols from
2 gases including carbon monoxide and hydrogen, wherein said nanosized Group VI transition
3 metal catalysts are produced by selecting Group VI metals, and mixtures thereof, and then
4 nanosizing said Group VI metals, and mixtures thereof by sonication to a mean particle diameter
5 in the range of from about 1 nm to about 100 nm.